



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,443	02/05/2002	Yong-Kil Kim	5484-87	2611

7590

08/26/2003

MARGER JOHNSON & McCOLLOM, P.C.  
1030 S.W. Morrison Street  
Portland, OR 97205

EXAMINER

ZERVIGON, RUDY

ART UNIT

PAPER NUMBER

1763

DATE MAILED: 08/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/072,443	KIM, YONG-KIL	
	<b>Examiner</b>	<b>Art Unit</b>	
	Rudy Zervigon	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2/5/2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 4, 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claims 4, 7 recite the limitation "the external periphery". There is insufficient antecedent basis for this limitation in the claim.

4. Claims 5, 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 5 and 11 require "the gas inducing inlets with a vertically extended diameter for downward penetration". A diameter is the width (distance) of a circle. Applicant's gas inducing inlets (13, 14; Figure 3) have only one diameter, in horizontal cross section, that is not "vertically extending". The Examiner suggests replacing "diameter" with "distance" or "length". The Examiner interprets "vertically extending" in this application as a vertical "distance" or "length".

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 1763

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Tracy et al (USPat. 4,612,077). Tracy teaches a gas (22; Figure 1) distribution apparatus (Figure 2,3; column 2, lines 55 - column 3, line 9) for supplying gas (22; Figure 1) into a semiconductor wafer processing chamber (16; Figure 1), the apparatus comprising:
  - i. a body (20; Figure 3; column 2, lines 55 - column 3, line 9) having a bottom wall and a plurality of gas (22; Figure 1) inlets (50, 52, 54, 56, 58, 60; Figure 3; column 3, lines 19-26) extending through the bottom wall; and an injection plate (12; Figure 3; column 2, lines 55-62) to be screwed with the bottom part of the body (20; Figure 3; column 2, lines 55 - column 3, line 9), the injection plate (12; Figure 3; column 2, lines 55-62) having small and large diameters of ring-shaped grooves (34, 36, 38; Figure 2, 3; column 3, lines 5-10) on its upper surface to connect the gas (22; Figure 1) inducing inlets (50, 52, 54, 56, 58, 60; Figure 3; column 3, lines 19-26), the grooves (34, 36, 38; Figure 2, 3; column 3, lines 5-10) having injection holes (68, 70, 72; Figure 3; column 3, lines 20-30) formed at a predetermined interval for downward penetration, as claimed by claim 1
  - ii. The apparatus, as defined in claim 1, wherein the gas (22; Figure 1) inducing inlets (50, 52, 54, 56, 58, 60; Figure 3; column 3, lines 19-26) are formed at different distances from the center of the bottom part of the body (20; Figure 3; column 2, lines 55 - column 3, line 9), as claimed by claim 2

Art Unit: 1763

- iii. The apparatus, as defined in claim 1, wherein the gas (22; Figure 1) inducing inlets (50, 52, 54, 56, 58, 60; Figure 3; column 3, lines 19-26) upwardly protrude from the body (20; Figure 3; column 2, lines 55 - column 3, line 9), as claimed by claim 3
- iv. The apparatus, as defined in claim 1, wherein the external periphery of the upper portion body (20; Figure 3; column 2, lines 55 - column 3, line 9) is fastened to the chamber, as claimed by claim 4 – Figure 1 shows coolant pipes 20 and gas pipe (40; Figure 3) fixed both to the body and the chamber 16.
- v. The apparatus, as defined in claim 1, wherein the body (20; Figure 3; column 2, lines 55 - column 3, line 9) includes the gas (22; Figure 1) inducing inlets (50, 52, 54, 56, 58, 60; Figure 3; column 3, lines 19-26) with a vertically extended diameter (Figure 3) for downward penetration, as claimed by claim 5
- vi. The apparatus, as defined in claim 1, wherein the injection plate (12; Figure 3; column 2, lines 55-62) is fastened with the bottom part of its external periphery to the bottom surface of the body (20; Figure 3; column 2, lines 55 - column 3, line 9) with a plurality of screws (26; Figure 2, 3), as claimed by claim 6
- vii. A gas (22; Figure 1) distribution apparatus (Figure 2,3; column 2, lines 55 - column 3, line 9) of semiconductor equipment to supply gas (22; Figure 1) into a chamber for a plasma etching process (Title), the apparatus comprising: a body (20; Figure 3; column 2, lines 55 - column 3, line 9) having a plurality of gas (22; Figure 1) inducing inlets (50, 52, 54, 56, 58, 60; Figure 3; column 3, lines 19-26) and cooling (24; Figure 1, 3) means on a downward grooved side of its plate; and an injection plate (12; Figure 3; column 2, lines 55-62) attached to the bottom surface of the body (20; Figure 3; column 2, lines 55 - column 3, line 9), the injection

Art Unit: 1763

plate (12; Figure 3; column 2, lines 55-62) having small and large diameter ring-shaped grooves (34, 36, 38; Figure 2, 3; column 3, lines 5-10) on its upper surface to connect the gas (22; Figure 1) inducing inlets (50, 52, 54, 56, 58, 60; Figure 3; column 3, lines 19-26), the grooves (34, 36, 38; Figure 2, 3; column 3, lines 5-10) having injection holes (68, 70, 72; Figure 3; column 3, lines 20-30) formed at a predetermined interval for downward penetration, as claimed by claim 7 – That Tracy does not teach that his coolant is water is not an apparatus limitation. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

- viii. The apparatus, as defined in claim 7, wherein the gas (22; Figure 1) inducing inlets (50, 52, 54, 56, 58, 60; Figure 3; column 3, lines 19-26) are formed at different diameters from the center of the bottom part of the body (20; Figure 3; column 2, lines 55 - column 3, line 9), as claimed by claim 8
- ix. The apparatus, as defined in claim 7, wherein the gas (22; Figure 1) inducing inlets (50, 52, 54, 56, 58, 60; Figure 3; column 3, lines 19-26) are upward protruded from the body (20; Figure 3; column 2, lines 55 - column 3, line 9), as claimed by claim 9

Art Unit: 1763

- x. The apparatus, as defined in claim 7, wherein the external periphery of the upper portion body (20; Figure 3; column 2, lines 55 - column 3, line 9) is fastened to the chamber, as claimed by claim 10 – Figure 1 shows coolant pipes 20 and gas pipe (40; Figure 3) fixed both to the body and the chamber 16.
- xi. The apparatus, as defined in claim 7, wherein the body (20; Figure 3; column 2, lines 55 - column 3, line 9) has the gas (22; Figure 1) inducing inlets (50, 52, 54, 56, 58, 60; Figure 3; column 3, lines 19-26) with a vertically extended diameter for downward penetration, as claimed by claim 11
- xii. The apparatus, as defined in claim 7, wherein the injection plate (12; Figure 3; column 2, lines 55-62) is fastened with the bottom part of its external periphery to the bottom surface of the body (20; Figure 3; column 2, lines 55 - column 3, line 9) with a plurality of screws (26; Figure 2, 3), as claimed by claim 12
- xiii. The apparatus, as defined in claim 7, wherein the cooling (24; Figure 1, 3) means includes injecting and discharging holes (not labeled; Figure 1,3) for inducing and discharging coolant (24; Figure 1, 3) and a coolant (24; Figure 1, 3) path connecting the injecting and discharging holes for circulating coolant (24; Figure 1, 3) in the body (20; Figure 3; column 2, lines 55 - column 3, line 9), as claimed by claim 13 – That Tracy does not teach that his coolant is water is not an apparatus limitation. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the

Art Unit: 1763

prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tracy et al (USPat. 4,612,077) in view of Tomita (USPat. 5,423,936). Tracy is discussed above. Tracy does not teach that his injecting and discharging holes are upwardly protruded from the bottom part of the body (20; Figure 3; column 2, lines 55 - column 3, line 9), as claimed by claim 14.

Tomita teaches a similar gas distribution manifold (2; Figure 1) including coolant injecting and discharging holes (42) are upwardly protruded from the bottom part of Tomita's body (23).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Tracy to orient his injecting and discharging holes to be upwardly protruding as taught by Tomita.

Motivation for Tracy to orient his injecting and discharging holes to be upwardly protruding as taught by Tomita is to provide an alternate and equivalent means for circulating coolant fluid as taught by Tomita.



Art Unit: 1763

*Conclusion*

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USPat. 5,906,683; 6,302,964.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (703) 305-1351. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official after final fax phone number for the 1763 art unit is (703) 872-9311. The official before final fax phone number for the 1763 art unit is (703) 872-9310. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (703) 308-0661. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (703) 308-1633.

*Rudy Zervigon*  
8/25/13